

WE CLAIM:

1. A method of shuffling cards comprising:
placing a stack of playing cards in a card input unit;
5 selecting a random position, corresponding to a single card, from the stack of playing cards;
determining the positional height of the single card within the stack of playing cards;
selecting a solenoid and corresponding ejector blade;
10 aligning the single card and the solenoid; and
firing said solenoid causing the ejector blade to eject the single card from the stack.
2. The method of claim 1 wherein selecting the solenoid is determined by
15 its proximity to the single card.
3. The method of claim 1 wherein aligning the single card and the solenoid comprises manipulating a position of the card input unit.
- 20 4. The method of claim 1 wherein the step of firing said solenoid causing the ejector blade to eject the single card from the stack further comprises:
firing said solenoid such that said ejector blade is substantially stopped when nearing contact with the card; and
25 firing said solenoid a second time to generally push the card from the stack.
5. The method of claim 1 further comprising measuring a thickness of a complete deck of cards in the card input unit and calculating an average card thickness.
- 30 6. The method of claim 5 wherein the average card thickness is stored in a shuffler memory device.

7. The method of claim 1 further comprising initially calibrating each solenoid.

5 8. The method of claim 7 wherein initially calibrating each solenoid comprises:

- a. positioning the card input unit above all solenoids;
- b. incrementally lowering said card input unit activating an uppermost solenoid;
- c. determining from sensor that a top card has been partially ejected;
- 10 d. repeating steps a-c for each solenoid; and
- e. storing location values corresponding to each solenoid.

15 9. The method of claim 1 further comprising applying a force or mass to the cards in the card input unit so that said cards are substantially compressed.

10 10. A method of shuffling cards comprising:
placing a stack of playing cards in a card input unit;
detecting a number of cards in a card input unit does not correspond to a shuffler perceived number representing the number of cards in the card input unit;
20 positioning the card input unit below a selected solenoid and corresponding ejector blade;
incrementally raising the card input unit in concert with firing the solenoid causing the ejector blade to attempt to at least partially eject a card from a card stack until a card is at least partially ejected;
25 in response to the at least partial card ejection, recording the position of the card stack; and
based on the card stack position, calculating the number of cards remaining in the card input unit.

30 11. The method of claim 10 further comprising initially storing in a shuffling machine memory device an average card thickness.

12. The method of claim 10 further comprising initially selecting a card thickness from a plurality of card thicknesses stored in a shuffling machine memory device.

5 13. The method of claim 10 further comprising measuring a thickness of a complete deck of cards in the card input unit and calculating an average card thickness.

14. The method of claim 13 wherein the average card thickness is stored in a shuffler memory device.

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15. The method of claim 10 further comprising applying a force or mass to the cards in the card input unit so that said cards are substantially compressed.

16. A method of shuffling cards comprising:

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placing a stack of playing cards in a card input unit;

randomly ejecting cards from said card stack by continuously activating one or more ejector blades;

after each activation of the ejector blades, determining whether any cards are in an undesirable orientation in the stack;

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activating one or more packer arms to properly position any cards in an undesirable orientation;

determining whether or not the activation of the packer arms properly positioned the cards in an undesirable orientation; and

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automatically adjusting the operation of the packer arms in response to the determination of whether or not the activation of the packer arms properly positioned the cards in an undesirable orientation.

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17. The method of claim 16 wherein the adjustment of the packer arms includes increasing or decreasing the frequency of activations and increasing or decreasing the strength of the activations.

18. A method of shuffling cards comprising:
placing a stack of playing cards in a card input unit;
randomly ejecting cards from said card stack by continuously activating one or
more ejector blades;
5 calculating a speed of one or more cards as they exit the card input unit;
comparing the calculated speed with a minimum threshold speed stored in a
shuffling machine memory device; and
in response to the calculated speed being below the minimum threshold speed,
notifying an operator that the playing cards need to be replaced.

19. The method of claim 18 further comprising recording a number of times
that more than one card is ejected by a single strike of one or more of the ejector
blades and in response to the recorded number exceeding a stored threshold number,
notifying an operator that the playing cards need to be replaced.

20. The method of claim 18 further comprising applying a force or mass to the
cards in the card input unit so that said cards are substantially compressed.

21. An automatic card shuffling machine comprising:
20 a card displacement device; and
a display device, said display device providing an operator a hierarchical menu
for navigating and selecting menu items related to the shuffling machine.

22. The automatic card shuffling machine of claim 21 further comprising
25 multiple buttons for navigating and selecting menu items.

23. The automatic card shuffling machine of claim 21 further comprising a
single button for navigating and selecting menu items.

24. The automatic card shuffling machine of claim 23 wherein a time of
30 depression of the single button dictates navigation or selection.

25. The automatic card shuffling machine of claim 24 wherein a button depression of 30 milliseconds to 2 seconds results in menu navigation and a button depression of 2 or more seconds results in item selection.